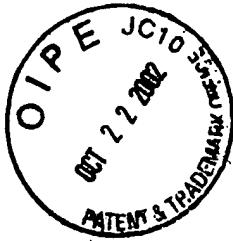


Attorney's Docket No.: 00786-292002 / MGH-0952



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Miller, S. I. Art Unit : 1641
 Serial No. : 09/068,804 Examiner : Padma Basker
 Filed : May 14, 1998
 Title : SALMONELLA SECRETED PROTEINS AND USES THEREOF

Assistant Commissioner for Patents
 Washington, D.C. 20231

DECLARATION UNDER 37 C.F.R. § 1.131

I, Samuel Miller, declare as follows:

1. I am the sole inventor of the subject matter claimed in the patent application identified above.
2. The specification of the present application discloses that part of an 11 kb EcoR1 subclone of pVV8-1 was sequenced and four open reading frames were identified (p. 50, lines 10-14). The gene products of the open reading frames were designated sspB, sspC, sspD, and sspA. Prior to July 8, 1995, sequencing of the open reading frames produced the sequence in the attached document which was prepared prior to July 8, 1995. There are some errors in this sequence. However, prior to July 8, 1995, additional sequencing of the same clone led to the sequences of SspB, SspC, SspD, and SspA shown in Figures 19-28 of the present application.
3. I hereby declare that all statements made herein of my own knowledge are true and that all statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR § 1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

10/15/02
 Date of Deposit

Samuel Miller
 Signature

K Hutchins
 Typed or Printed Name of Person Signing Certificate

BEST AVAILABLE COPY

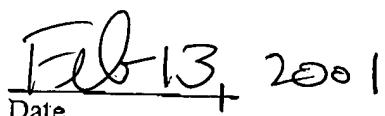
Applicant : Miller, S. I.
Serial No. : 09/068,804
Filed : May 14, 1998
Page : 2

Attorney's Docket No.: 00786-292002 / MGH

both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued therefrom.



Samuel I. Miller, M.D.


Date

74f+74rc+71r-5/12-strider -> 3-phase Translation

DNA sequence 3403 b.p. CGCAAAGCCGAG ... CCACGAATCTGT linear

31 / 11

CGC AAA GCC GAG GAA ACG AAC CGC ATT ATC GGA TGT ATC GGG AAA GTC CTC CGC CGC CTG
 arg lys ala glu glu thr asn arg ile met gly cys ile gly lys val leu gly ala leu
 ala lys pro arg lys arg thr ala leu trp asp val ser gly lys ser ser ala arg cys
 gln ser arg gly asn glu pro his tyr gly met tyr arg glu ser pro arg arg ala ala

61 / 21

CTA ACC ATT GTC AGC CTT GTG GCC GCT TTT ACC GGT GGG GCG AGT CTG CGC CTG GCT
 leu thr ile val ser val val ala ala val phe thr gly gln ser leu ala leu ala
 OCH pro leu ser ala leu trp pro leu phe leu pro val gly arg val trp arg trp leu
 asn his cys gln arg cys gly arg cys phe tyr arg trp gly glu ser gly ala gln cys

131 / 41

GCG GTG GCA CTT CCG GTA ATG GTG GAT GAA ATT GTG AAC GCG GCG ACG GGA GTG TCC
 ala val gly leu ala val met val ala asp glu ile val lys ala ala thr gly val ser
 arg trp asp leu arg OCH trp trp pro met lys leu OPA arg arg arg glu cys arg
 gly gly thr cys gly asn gly gly arg OPA asn cys glu gly gly asp gly ser val val

181 / 61

TTT ATT CAG CAG GCG CTA AAC CCG ATT ATG GAG CAT CTC CTG AAG CCG TTA ATC GAG CTG
 phe ile gln gln ala leu asn pro ile met glu his val leu lys pro leu met glu leu
 leu phe ser arg arg OCH thr arg leu trp ser met ser OPA ser arg OCH trp ser OPA
 tyr ser ala gly ala lys pro asp tyr gly ala cys pro glu ala val asn gly ala asp

241 / 81

ATT GGC AAC GCG ATT ACC AAA GCG CTG GAA CGA TTA GGC GTC GAT AGA AAA CCG CAG AGA
 ile gly lys ala ile thr lys ala leu glu gly leu gly val asp arg lys arg gln arg
 leu ala arg arg leu pro lys arg trp lys asp AMB ala ser ile glu asn gly arg asp
 trp gln gly asp tyr gln ser ala gly arg arg ile arg arg AMB lys thr ala glu met

301 / 101

TGG CCG GCA GCA TTG TTG GTG CGA TTG TCG CCG CTA TGC CAT GGT GAC GCG GTC ATT GTG
 trp pro ala ala leu leu val arg leu ser pro leu cys his gly asp ala val ile val
 gly arg gln his cys trp cys asp cys arg arg tyr ala met val thr arg ser leu trp
 ala gly ser ile val gly ala ile val ala ala met pro trp OPA arg gly his cys gly

361 / 121

ATG GTC GCA GTT GTC GGG AAA GGC GCG GCG GCG AAA CTG GGT AAC GCG CTG AGC AAA ATG
 val val ala val val gly lys gly ala ala lys leu gly asn ala leu ser lys met
 trp ser gln leu ser gly lys ala arg arg asp trp val thr arg OPA ala lys OPA
 gly arg ser cys arg glu arg arg gly gly glu thr gly OCH arg ala glu gln asn asp

421 / 141

ATG GGC GAA ACG ATT AAG AAG TTG GTG CCT AAC gTG CTC AAA CAG TTG GCG CAA AAC GGC
 met gly glu thr ile lys lys leu val pro asp val leu lys gln leu ala gln asn gly
 trp ala lys arg leu arg ser trp cys leu thr cys OPA asn ser trp arg lys thr ala
 gly arg asn asp OCH glu val gly ala OCH arg ala glu thr val gly ala lys arg gln

481 / 161

AGC AAA CTC TTT ACC CAG GGG ATG CAA CGT ATT ACT AGC GGT CTG GGT AAT GTG GGT AGC
 ser lys leu phe thr gln gly met gln arg ile thr ser gly leu gly asn val gly ser
 ala asn ser leu pro arg gly cys asn val leu ala val trp val met trp val ala
 gln thr leu tyr pro gly asp ala thr tyr AMB arg ser gly OCH cys gly AMB gln

541 / 181

AAG ATG GGG CTG CAA ACG AAT gCC TTA AGT AAA GAG CTG GTC GGT AAT ACC CTA AAT AAA
 lys met gly leu gln thr asn ala leu ser lys glu leu val gly asn thr leu asn lys
 arg trp ala cys lys arg met pro OCH val lys ser trp AMB val ile pro OCH ile lys
 asp gly pro ala asn glu cys leu lys OCH arg ala gly arg OCH tyr pro lys OCH ser

601 / 201

GTG GCG TTG GGC ATG GAA GTC ACG AAT ACC GCA GCC CAG TCA GCC CGT GGT GTT GCC CAG
 val ala leu gly met glu val thr asn thr ala ala gln ser ala gly gly val ala glu
 trp arg trp ala trp lys ser arg ile pro gln pro ser gln pro val val leu pro arg
 gly val gly his gly ser his glu tyr arg ser pro val ser arg trp cys cys arg gly

661 / 221

GGC GTA TTT ATT AAA AAT GCC AGC GAG GCG CTT GCT GAT TTT ATG CTC CCC CGT TTT GCC
 gly val phe ile lys asn ala ser glu ala leu ala asp phe met leu ala arg phe ala
 ala tyr leu leu lys met pro ala arg arg leu leu ile leu cys ser pro val leu pro
 arg ile tyr OCH lys cys gln arg gly ala cys OPA phe tyr ala arg pro phe cys his

721 / 241

ATG GAT CAG ATT CAG CAG TGG CTT AAA CAA TCC GTA GAA ATA TTT GGT GAA AAC CAG AAG
 met asp gln ile gln gln trp leu lys gln ser val glu ile phe gly glu asn gln lys
 trp ile arg phe ser ser gly leu asn asn pro AMB lys tyr leu val lys thr arg arg
 gly ser asp ser ala val ala OCH thr ile arg arg asn ile trp OPA lys pro glu gly

B
 ↓

781 / 261
 GTA ACG GCG GAA CTG CAA AAA GCC ATG ACT TCT GCG GTA CAG CAA AAT GCG GAT GCT
 val thr ala glu leu gln lys ala met ser ser ala val gln gln asn ala asp ala ser
 OCH arg arg asn cys lys lys pro cys leu leu arg tyr ser lys met arg met leu arg
 asn gly gly thr ala lys ser his val phe cys gly thr ala lys cys gly cys phe ala

841 / 281
 CGT TTT ATT CTG CGC CAG AGT CGC GCA TAA AAA CTG CGG AAA TAA AGC TAA AAT ATG
 rg phe ile leu arg gln ser arg ala OCH lys leu pro lys OCH arg glu lys asn met
 val leu phe cys ala arg val ala his lys asn cys gln asn lys gly arg lys ile cys
 phe tyr ser ala pro glu ser arg ile lys thr ala lys ile lys gly glu lys tyr val

901 / 301
 TTA ATT AGT AAT GTG GCA ATA AAT CCC GCC GCT TAT TTA AAT AAT CAT TCT GTT GAG AAT
 leu ile ser asn val gly ile asn pro ala ala tyr leu asn asn his ser val glu asn
 OCH leu val met trp glu OCH ile pro pro leu ile OCH ile ile ile leu leu arg ile
 asn AMB OCH cys gly asn lys ser arg arg leu phe lys OCH ser phe cys OPA glu AMB

961 / 321
 AGT TCA CAG ACA GCT TCG CAA TCC GTT AGC GCT AAA GAT ATT CTG AAT AGT ATT GGT ATT
 ser ser gln thr ala ser gln ser val ser ala lys asp ile leu asn ser ile gly ile
 val his arg gln leu arg asn pro leu ala leu lys ile phe OPA ile val leu val leu
 phe thr asp ser phe ala ile arg AMB arg OCH arg tyr ser glu AMB tyr trp tyr AMB

1051 / 351
 AGC AGC AGT AAA GTC AGT GAC CTC CGG TTG AGT CCT ACA CTG AGC CGG CCT CGG AGG GGT
 ser ser lys val ser asp leu gly ile ser pro thr leu ser ala pro ala arg gly
 ala ala val lys ser val thr trp gly OPA val leu his OPA ala arg leu arg gly val
 gln gln OCH ser gln OPA pro gly val glu ser tyr thr glu arg ala cys glu gly tyr

1081 / 361
 ATT AAC GCA AAC CCC CGG AAC GAT CAC GTC CTT TTT AAA AGC CAG TAT TCA AAA TAC CGA
 ile asn ala asn pro arg asn asp his val leu phe lys ser gln tyr ser lys tyr arg
 leu thr gln thr pro gly thr ile thr ser phe leu lys ala ser ile gln asn thr asp
 OCH arg lys pro pro glu arg ser arg pro phe OCH lys pro val phe lys ile pro thr

1171 / 391
 CAT GAA TCA GGA TTT GAA TGC TCT GGC AAA TAA TGT CAC CAC TAA AGC GAA TCA GGT TGT
 GCA AAC CCA GTC ATT ACG CGA GCA GCA AGA AGT CGG AAA GTT TTT TGA TAT TAG CGG AAT
 met asn gln asp leu asn ala leu ala asn asn val thr thr lys ala asn glu val val
 OPA ile arg ile OPA met leu trp gln ile met ser arg leu lys arg met arg leu cys

1231 / 411
 GCA AAC CCA GTC ATT ACG CGA GCA GCA AGA AGT CGG AAA GTT TTT TGA TAT TAG CGG AAT
 ala asn pro val thr arg ala ala gly arg ser arg lys val phe OPA tyr AMB arg asn
 gln thr gln leu arg glu gln gln ala glu val gly lys phe phe asp ile ser gly met
 lys pro ser tyr ala ser ser arg gln lys ser glu ser phe leu ile leu ala cys

1261 / 421
 GTC TTC CAG TGC CGT TGC GCT GGC TGC CGG GAA TAC GTT AAT GCT GAC GTT GAA CCA
 val phe gln cys arg cys ala val gly cys arg glu tyr val asn ala asp val glu pro
 ser ser ala val ala leu leu ala ala asn thr leu met leu thr leu asn gln

1351 / 451
 GGC TGA TAG CAA ACT GTC TGG TAA GTT GTC ATT AGT CAG TTT TGA TGC AGC TAA AAC gac
 gly OPA AMB gln thr val trp OCH val val ile ser gln phe OPA cys ser OCH asn asp
 ala asp ser lys leu ser gly lys leu ser leu val ser phe asp ala ala lys thr thr
 leu ile ala asn cys leu val ser cys his AMB ser val leu met gln leu lys arg arg

1411 / 471
 ggc aag ctc cat gat gcg cga agg gat gaa tcg ttg tcg gta gta ttc cag agg ccc
 gly lys leu his asp ala arg arg asp glu ser leu ser val val phe gln arg gln gly
 ala ser ser met met arg glu gly met asn arg cys arg AMB tyr ser arg gly lys gly
 gln ala pro OPA cys ala lys gly OPA ile val val gly ser ile pro glu ala arg gly

1471 / 491
 ggg
 gly ser val trp gly
 gly gly gly gly gly gly gly gly gly gly gly gly gly gly ala pro tyr gly glu
 gly ala pro tyr gly glu

1531 / 511
 agg-atg...atg...cg...tgg...ccg...gta...gta...ttt...ccc...aga...gac...gct...tca...gtt...ggg...gat...cac...tgg...cg...
 arg met met arg trp pro val val phe pro arg ala ala ser val gly asp his trp arg
 gly OPA cys val gly arg AMB tyr phe pro glu pro leu gln leu gly ile thr gly val
 asp asp ala leu ala gly ser ile ser gln ser arg phe ser trp gly ser leu ala trp

1591 / 531
 ggg cgc CAA ACT GGA ATA TAA GGG GCT GCA GAA TGA AAG AGG ccc ccT TAA ACA TAA TGC
 gly arg gln thr gly ile OCH gly ala ala glu OPA lys arg pro pro OCH thr OCH cys
 gly ala lys leu glu tyr lys gly leu gln asn glu arg gly pro leu lys his asn ala
 ala pro asn trp asn ile arg gly cys arg met lys glu ala pro leu asn ile met pro

1651 / 551
 CGG GAA GAT CGA TAA ACT GAC CAC TGA AAG CCA CAG TAT TAA AAA CGT GCT GAA CGG GCA

Ecology of

1224 E

INSERT C

arg glu asp arg OCH thr asp his OPA pro gln tyr OCH lys arg ala glu arg
gly lys ile asp lys leu thr thr glu ser his ser ile lys asn val leu asn gln
gly arg ser ile asn OPA pro leu lys ala thr val leu lys thr cys OPA thr gly arg
1711 / 571

1681 / 561
GAA TAG cAT CAA ACT CGG TGC TGA AGC cGT CGA TTC TCT GAA ATC GTT AAA TAT GAA GAA
glu AMB his gln thr arg cys OPA arg arg phe ser glu ile val lys tyr glu glu
asn ser ile lys leu gly ala glu gly val asp ser leu lys ser leu asn met lys lys
ile ala ser asn ser val leu lys ala ser ile leu OPA asn arg OCH ile OPA arg lys

1771 / 591

1741 / 581
AAC CGG TAC CGA TGC GAC GAA AAA TCT TAA TGA TGC GAC GCT TAA ATC TAA TGC CGG AAC
asn arg tyr arg cys asp glu lys ser OPA cys asp ala OCH ile OCH cys arg asn
thr gly thr asp ala thr lys asn leu asn asp ala thr leu lys ser asn ala gly thr
pro val pro met arg arg lys ile leu met met arg arg leu asn leu met pro glu pro
1831 / 611

1801 / 601
CAG CGC CAC CGA AAG TCT GCG TAT TAA AGA CAG TAA ACA AAT CTC CCC TGA ACA TCA
gln arg his gln lys ser gly tyr OCH arg gln OCH OCH thr asn leu pro OPA thr ser
ser ala thr glu ser leu gly ile lys asp ser asn lys gln ile ser pro glu his gln
ala pro arg lys val trp val leu lys thr val ile asn lys ser pro leu asn ile arg
1891 / 631

1951 / 651

1921 / 641
GCC TAT TCT GTC GAA ACG TCT TCA GTC TGT CGA ATC CGA TAT TCG Tct TGA GCA GAA TAC
CAT CGA TAT GAC CCG AAT CGA TGC GcG cAA GAT GCA GAT GAC GGG CGA TCT GAT TAT GAA
his gln tyr asp pro asn arg cys ala gln asp ala asp gly arg ser asp tyr glu
met asp met thr arg ile asp ala arg lys met gln met thr gly asp leu ile met lys
trp ile OPA pro glu ser met arg ala arg cys arg OPA arg ala ile OPA leu OPA arg
1981 / 661

2011 / 671

GAA CTC CCT CAC GGT CGG TGG TAT TGC AGG GGc GTC CGG CCA GTA CGC CGC TAC TCA GGA
glu leu gly his gln arg trp tyr cys arg gly val arg ala val arg arg tyr ser gly
asn ser val thr val gly gly ile ala gly ala ser gly gln tyr ala ala thr gln glu
thr arg ser arg ser val val leu gln gly arg pro gly ser thr pro leu leu arg asn
2041 / 681

2071 / 691

201 / 701
ACG TTC CGA GCA GCA AAT TAG CCA GGT GAT AAC CGG GTT GCC ACC CCA TCG GAC CAA
thr phe arg ala ala asn AMB pro gly asp asn arg val ala ser thr ala ser asp glu
arg ser glu gln gln ile ser gln val ile thr gly leu pro ala pro his arg thr lys
val pro ser ser lys leu ala arg OPA OCH pro gly cys gln his arg ile gly arg ser
2131 / 711

2191 / 731

2161 / 721
AGC ATT AAC CAG TCG AAA GCA TCC GCA CTC GCT CGT ATC GCA GGC AAT ATT CCC GCT TAA
ser ile asn gln ser lys ala ser ala leu ala arg ile ala gly asn ile arg ala OCH
ala leu thr ser arg lys his pro his ser leu val ser gln ala ile phe ala leu asn
his OCH pro val glu ser ile arg thr arg ser tyr arg arg gln tyr ser arg leu ile

2221 / 741

2251 / 751

TCT GAA AGG TCA TCT ATA CCC CAT CAT GGG TGT GAT TTA ATC GCG CTC CTG ATG GCG AAC
ser glu arg ser ser ile arg his his gln cys asp leu ile ala leu leu met ala asn

2311 / 771

leu lys gly his leu tyr ala ile met gly val ile OCH ser arg ser OPA trp arg thr
OPA lys val ile tyr thr pro ser trp val OPA phe asn arg ala pro asp gly glu leu
2281 / 761

2331 / 771

TGG GGA TAT TAT GCT TAA TAT TCA AAA TTA TTC CGC TTC TCC TCA TCC GGG GAT CGT TCC
trp gly tyr tyr ala OCH tyr ser lys leu phe arg phe ser ser ser gly asp arg cys
gly asp ile met leu asn ile gln asn tyr ser ala ser pro his pro gly ile val ala

2371 / 791

gly ile leu cys leu ile phe lys ile ile pro leu leu leu ile arg gly ser leu pro
2341 / 781

2431 / 811

CAC AGA ACA TCG CGG TAC AGA TAT CAT ATT ATC GCA GGc GGC TAC TAA AAT CCA CCA
his arg thr ser arg tyr arg tyr his phe ile ile ala gly gly tyr OCH asn pro pro

2491 / 831

thr glu his arg gly thr arg ile ile ser leu ser gln ala ala thr lys ile his gln
gln asn ile ala val gln ile ser phe his tyr arg arg leu leu lys ser thr arg
461 / 821

23.6.69

his ser arg arg cys ser gln arg [REDACTED] sp leu OPA arg glu OCH OPA arg ala [REDACTED] leu
2521 / 841 2551 / 851
TGG GGC CAG CAG TTG ACC ACC CTG AAT GCG CTC CCG AAG TCC GGC GTG TCA TTA TCC
trp gly gln gln leu thr ser ser leu asn ala leu ala lys ser gly val ser leu ser
gly ala ser ser OPA pro ala ala OPA met arg trp arg ser pro ala cys his tyr pro
gly pro ala val asp gln gln pro glu cys ala gly glu val arg arg val ile ile arg
2581 / 861 2611 / 871
2611 / 871
CA GAA CAA AAT GAG AAC CTG CCG ACC CCG TTT TCT GCG CCC ACG TCG CCC TTA TTT AGC
ala glu gln asn glu asn leu arg ser ala phe ser ala pro thr ser ala leu phe ser
gln asn lys met arg thr cys gly ala arg phe leu arg arg arg pro tyr leu ala
arg thr lys OPA glu pro ala glu arg val phe cys ala asp val gly leu ile AMB arg
2641 / 881 2671 / 891
GCT TCG CCT ATG GCG CAG AGA ACA ACC ATT TCT GAT GCT GAG ATT TCG GAT ATG GTT
ala ser pro met ala gln pro arg thr thr ile ser asp ala glu ile trp asp met val
leu arg leu trp arg ser arg glu gln pro phe leu met leu arg phe gly ile trp phe
phe ala tyr gly ala ala glu asn asn his phe OPA cys OPA asp leu gly tyr gly phe
2701 / 901 2731 / 911
TCC CAA AAT ATA TCG GCG ATA GGT GAC AGC TAT CTG GGC GTT TTT TAT GAA AAA CGT TGT
ser gln asn ile ser ala ile gly asp ser tyr leu gly val phe tyr glu lys arg cys
pro lys ile tyr arg arg AMB val thr ala ile trp ala phe phe met lys asn val val
pro lys tyr ile gly asp arg OPA gln leu ser gly arg phe leu OPA lys thr leu ser
2761 / 921 2791 / 931
2761 / 921
CGC AGT CTA TAC CGA tTT TTA TCA GGC CTT CAG TGA TAT TCT TTC CaA AAT CGG AGG CTG
arg ser leu tyr arg phe leu ser gly leu gln OPA tyr ser phe gln asn gly arg leu
ala val tyr thr asp phe tyr gln ala phe ser asp ile leu ser lys met gln gly trp
gln ser ile pro ile phe ile arg pro ser val ile phe phe pro lys trp glu ala gly
2821 / 941 2851 / 951
GTT ATT ACC AGG tAA GGA CGG TAA TAC CGT TAA GCT AGA TGT TAC CTC ACT CAA AAA TGA
val ile thr arg OCH gly arg OCH tyr arg OCH ala arg cys tyr leu thr gln lys OPA
leu leu pro gly lys asp gly asn thr val lys leu asp val thr ser leu lys asn asp
tyr tyr gln val arg thr val ile pro leu ser AMB met leu pro his ser lys met ile
2881 / 961 2911 / 971
2881 / 961
TTT AAA CAG TTT AGT CAA TAA ATA TAA TCA AAT AAA CAG TAA TAC GTT TTA TTT CCA GGC
phe lys gln phe ser gln OCH ile OCH ser asn lys gln OCH tyr val leu phe pro gly
leu asn ser leu val asn lys tyr asn gln ile asn ser asn thr phe tyr phe gln ala
OCH thr val AMB ser ile asn ile lys OCH thr val ile arg phe ile ser arg gln
2941 / 981 2971 / 991
2941 / 981
AGT CAG TTA AAC GCA CTA GAC GGA GAC GAG AGC AGT GGC TCA GTG AAT TGA ATT TAC CGA
er gln leu asn ala leu asp gly asp glu ser ser gly ser val asn OPA ile tyr arg
val ser OCH thr his AMB thr glu thr arg ala val ala gln OPA ile glu phe thr glu
ser val lys arg thr arg arg arg glu gln trp leu ser glu leu asn leu pro asn
3001 / 1001 3031 / 1011
3001 / 1001
ATA CCT GCC TGA AAT CTT ATC GAT CCG GTT ATG TCG TCA CCG TTG ATC TGA CGC CAT TAC
ile ala ala OPA asn leu met asp pro val met ser ser pro leu ile OPA arg his tyr
AMB leu pro glu ile leu trp ile arg leu cys arg his arg OPA ser asp ala ile thr
ser cys leu lys ser tyr gly ser gly tyr val val thr val asp leu thr pro leu gln
3061 / 1021 3091 / 1031
3061 / 1021
AAA AAA TGG TTC AGG ATA TTG ATG GTT TAG GCG CgC CCG GAA AAG ACT CAA AAC TCG AAA
lys lys trp phe arg ile leu met val AMB ala arg arg glu lys thr gln asn ser lys
lys asn gly ser gly tyr OPA trp phe arg arg ala gly lys arg leu lys thr arg asn
lys met val gln asp ile asp gly leu gly ala pro gly lys asp ser lys leu glu met
3121 / 1041 3151 / 1051
3121 / 1041
TGG ATA ACG CCA AAT ATC AAC CCT CCC ACT CGG GTT TTA AAG CGC AGG AAG AAA ATA TCA
trp ile thr pro asn ile lys pro gly ser arg val leu lys arg arg lys lys ile OPA
gly OCH arg gln ile ser ser leu ala val gly phe OCH ser ala gly arg lys tyr glu
asp asn ala lys tyr gln ala trp gln ser gly phe lys ala gln glu glu asn met lys
3181 / 1061 3211 / 1071
3181 / 1061
AAA CCA CAT TAC AGA CCC TCA CGC AAA AAT ATA GCA ATG CCA ATT CAT TGT ACG ACA ACC
lys pro his tyr arg arg OPA arg lys asn ile ala met pro ile his cys thr thr thr
asn his ile thr asp ala asp ala lys ile AMB gln cys gln phe ile val arg gln pro
thr thr leu gln thr gln lys tyr ser asn ala asn ser leu tyr asp asn leu
3241 / 1081 3271 / 1091
3241 / 1081
TGG TAA AAG TGC TGA GCA GTA CGA TAA GTA CGA GCC TGG AAC CGC CAA AGC [REDACTED] CcT GCA
trp OCH lys cys OPA ala val arg OCH val arg ala trp asn arg gln ser leu pro ala
gly lys ser ala glu gln tyr asp lys tyr glu pro gly thr ala lys ala phe leu gln
val lys val leu ser ser thr ile ser thr ser leu glu pro pro lys pro ser cys lys
3301 / 1101 3331 / 1111
3301 / 1101
AGG ATA aCA GAA GAG GAT ATT GGT TAC AAG TGT AAG GAC TCA GCC CCC CGT CAT AAT
rg ile thr glu glu asp ile asp gly tyr lys cys lys asp ser ala pro arg his asn
gly OCH gln lys arg ile leu met val thr ser val arg thr gln pro pro val ile met
asp asn arg arg gly tyr OCH trp Tca gln val OCH gly leu ser pro pro ser OCH cys
3361 / 1121 3391 / 1131

GCC ACG TAG TCA GAC CGA GAT CAA AA GCC ACG AAT CTG
ala arg AMB ser asp arg asp gln asn ala ala thr asn leu
pro gly ser gln thr glu ile lys thr arg pro arg ile
gln val val arg pro arg ser lys arg gly his glu ser

5

74f-74rc+71r-5/12-strider [898 to 2120] -> 3-phase Translation

15
3350923

NA sequence 3303 b.p. CGCAAAGCCGAG ... CCACCGAATCTCT linear

898 / 1 928 / 11
ATG TTA ATT ACT AAT GTG GCA ATA AAT CCC GCC GCT TAT TTA AAT CAT TCT GTT GAG
met leu ile ser asn val gly ile asn pro ala ala tyr leu asn asn his ser val glu
"cys" OCH leu val met trp glu OCH ile pro pro leu ile OCH ile ile ile leu leu arg
val asn AMB OCH cys gly asn lys ser arg arg leu phe lys OCH ser phe cys OPA glu

958 / 21 988 / 31
AAT AGT TCA CAG ACA GCT TCG CAA TCC GTT AGC GCT AAA GAT ATT CTC AAT AGT ATT GGT
asn ser ser gln thr ala ser gln ser val ser ala lys asp ile leu asn ser ile gly
ile val his arg gln leu arg asn pro leu ala leu lys ile phe OPA ile val leu val
AMB phe thr asp ser phe ala ile arg AMB arg OCH arg tyr ser glu AMB tyr trp tyr

1018 / 41 1048 / 51
ATT AGC AGC ACT AAA GTC AGT GAC CTG GGG TTG AGT CCT ACA CTG AGC GCG CCT GCG CAG
ile ser ser lys val ser asp leu gly leu ser pro thr leu ser ala pro ala gln
leu ala ala val lys ser val thr trp gly OPA val leu his OPA ala arg leu arg arg
AMB gln gln OCH ser gln OPA pro gly val glu ser tyr thr glu arg ala cys ala gly

1078 / 61 1108 / 71
GGC TAT TAA CGC AAA CCC CCG GAA CGA TCA CGT CCT TTT TAA AAG CCA GTA TTC AAA ATA
gly tyr OCH arg lys pro pro glu arg ser arg pro phe OCH lys pro val phe lys ile
gly ile asn ala asn pro arg asn asp his val leu phe lys ser gln tyr ser lys tyr
val leu thr gln thr pro gly thr ile thr ser phe leu lys ala ser ile gln asn thr

1138 / 81 1158 / 91
CCG ACA TCA ATC AGG ATT TGA ATG CTC TCG CAA ATA ATG TCA CGA CTA AAG CGA ATG AGG
pro thr OPA ile arg ile OPA met leu trp gln ile met ser arg leu lys arg met arg
arg his glu ser gly phe glu cys ser gly lys OCH cys his asp OCH ser glu OPA gly
asp met asn gln asp leu asn ala leu asn val thr thr lys ala asn glu val

1198 / 101 1228 / 111
TTC TGC AAA CCC AGT TAC GCG AGC AGC AGG CAG AAG TCG GAA AGT TTT TGT ATA TTA CGC
leu cys lys pro ser tyr ala ser ser arg gln lys ser glu ser phe leu ile leu ala
cys ala asn pro val thr arg ala ala gly arg ser arg lys val phe OPA tyr AMB arg
val gln thr gln leu arg glu gln ala glu val gly lys phe phe asp ile ser gly

1258 / 121 1288 / 131
CAA TGT CTT CCA GTG CCG TTG CGC TGT TCG CCG CGA ATA CGT TAA TGC TGA CGT TGA
glu cys leu pro val pro leu arg cys trp leu pro arg ile arg OCH cys OPA arg OPA
asn val phe gln cys arg cys ala val gly cys arg glu tyr val asn ala asp val glu
met ser ser ala val ala leu leu ala ala asn thr leu met leu thr leu asn

1318 / 141 1348 / 151
ACC AGG CTG ATA GCA AAC TGT CTG GTA AGT TGT CAT TAG TCA GTT TTG ATG CAG CTA AAA
thr arg leu ile ala asn cys leu val ser cys his AMB ser val leu met gln leu lys
pro gly OPA AMB gln thr val trp OCH val val ile ser gln phe OPA cys ser OCH asn
gln ala asp ser lys leu ser gly lys leu ser leu val ser phe asp ala ala lys thr

1378 / 161 1408 / 171
Cga cgg caa gct cca tga tgc gcg aag gga tga atc gtt gtc ggt agt att cca gag ccc
arg arg gln ala pro OPA cys ala lys gly OPA ile val val gly ser ile pro glu pro
asp gly lys leu his asp ala arg arg asp glu ser leu ser val val phe gln ser arg
thr ala ser ser met met arg glu gly met asn arg cys arg AMB tyr ser arg ala ala

1438 / 181 1468 / 191
ctt cag ttg ogg atc act ggc gtc ggc gtc AAA CTG GAA TAT AAG GGG CTG CAG AAT GAA
leu gln leu gly ile thr gly val gly ala lys leu glu tyr lys gly leu gln asn glu
phe Ser Trp gly ser leu ala trp ala pro asp trp asn ile arg gly cys arg met lys
ser val gly asp his trp arg gly arg gln thr gly ile OCH gly ala ala glu OPA lys

1498 / 201 1528 / 211
AGA GGC ccc cTT AAA CAT AAT GCC GgC AAG ATC GAT AAA CTG ACC ACT GAA AGC CAC AGT
arg gly pro leu lys his asn ala gly lys ile asp lys leu thr thr glu ser his ser
glu ala pro leu asn ile met pro gly arg ser ile asn OPA pro leu lys ala thr val

arg pro pro OCH thr OCH cys arg glu asp arg OCH thr asp his OPA lys pro gln tyr
1558 / 221 1588 / 231
ATT AAA AAC GTG CTG AAC GGG CAG AAT AGC ATC AAA CTC CCT GCT GAA GGC GTC GAT TCT
ile lys asn val leu asn gly gln asn ser ile lys leu gly ala glu gly val asp ser
leu lys thr cys OPA thr gly arg ile ala ser asn ser val leu lys ala ser ile leu
OCH lys arg ala glu arg ala glu AMB his gln thr arg cys OPA arg arg arg phe ser

1618 / 241 1648 / 251
CTG AAA TCG TTA AAT ATG AAG AAA ACC GGT ACC GAT GCG ACC AAA AAT CTT AAT GAT CCC
leu lys ser leu asn met lys lys thr gly thr asp ala thr lys asn leu asn asp ala
OPA asn arg OCH ile OPA arg lys pro val pro met arg arg lys ile leu met met arg
glu ile val lys tyr glu glu asn arg tyr arg cys asp glu lys ser OCH OPA cys asp

1708 / 271

1678 / 261
ACG CTT AAA TCT AAT GCC GGA ACC AGC GCC ACG GAA AGT CTG GGT ATT AAA GAC AGT AAT
thr leu lys ser asn ala gly thr ser ala thr glu ser leu gly ile lys asp ser asn
arg leu asn leu met pro glu pro ala pro arg lys val trp val leu lys thr val ile
ala OCH ile OCH cys arg asn gln arg his gly lys ser gly tyr OCH arg gln OCH OCH

738 / 281
1768 / 291
AAA CAA ATC TCC CCT GAA CAT CAG GCT ATT CTG TCG AAA CGT CTT Gag TCT GTC GAA TCC
lys gln ile ser pro glu his gln ala ile leu ser lys arg leu glu ser val glu ser
asn lys ser pro leu ser ile arg leu phe cys arg asn val leu ser leu ser asn pro
thr asn leu pro OPA thr ser gly tyr ser val glu thr ser OPA val cys arg ile arg

1798 / 301
1828 / 311
GAT ATT CGT ctT GAG CAG AAT ACC ATG GAT ATG ACC CGA ATC GAT GcG cGc AAG ATG CAG
asp ile arg leu glu gln asn thr met asp met thr arg ile asp ala arg lys met gln
ile phe val leu ser arg ile pro trp ile OPA pro glu ser met arg ala arg cys arg
tyr ser ser OPA ala glu tyr his gly tyr asp pro asn arg cys ala gln asp ala asp

1858 / 321
1888 / 331
ATG ACC GCC GAT CTG ATT ATG AAG AAC TCG GTC ACC GGT GGT ATT GCA GGG GcG TCC
met thr gly asp leu ile met lys asn ser val thr val gly gly ile ala gly ala ser
OPA arg ala ile OPA leu OPA arg thr arg ser arg val val leu gln gly arg pro
asp gly arg ser asp tyr glu glu leu gly his gly arg trp tyr cys arg gly val arg

1918 / 341
1948 / 351
1918 / 341
1948 / 351
GGG CAG TAC GCC GCT ACT CAG GAA CGT TCC GAG CAG CAA ATT AGC CAC CTG ATG ACC GGG
gly gln tyr ala ala thr gln glu arg ser glu gln gln ile ser gln val ile thr gly
gly ser thr pro leu leu arg asp val pro ser ser lys leu ala arg OPA OCH pro gly
ala val arg arg tyr ser gly thr phe arg ala ala asn AMB pro gly asp (asn) arg val

1978 / 361
2008 / 371
TTG CCA GCA CCG CAT CGG ACG AAG CCC GTG AAA CTT CAC GCA AAT CGA CCA GCC TGA TTC
leu pro ala pro his arg thr lys pro val lys val his val asn arg pro ala OPA phe
cys gln his arg ile gly arg ser pro OPA lys phe thr OCH ile asp gln pro asp ser
ala ser thr ala ser asp glu ala arg glu ser ser arg lys ser thr ser leu ile gln

2038 / 381
2068 / 391
AGG AAA TGC TGA AAA CAA TGG AGA CCA TTA ACC AGT CGA AAG CAT CCG CAC TCG CTC GTA
arg lys cys OPA lys gln trp arg ala leu thr ser arg lys his pro his ser leu val
gly asn ala glu asn asn gly glu his OCH pro val glu ser ile arg thr arg ser tyr
glu met leu lys thr met glu ser ile asn gln ser lys ala ser ala leu ala arg ile

2098 / 401
CG CAG CCA ATA TTC GCG CTC A
ser gln ala ile phe ala leu
arg arg gln tyr ser arg
ala gly asn ile arg ala

10/20/01

2001-2002

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